FUJITSU

ESPRIMO C

Operating Manual

Are there ...

... any technical questions or problems?

Please contact:

- our Hotline/Help Desk (refer to the enclosed Help Desk List or go to: "http://ts.fujitsu.com/support/helpdesk.html")
- your sales partner
- your sales office

Further information can be found in the "Safety" and "Warranty" manuals.

The latest information about our products, useful tips, updates etc. is available from our website: "http://ts.fujitsu.com"

Published by
Fujitsu Technology Solutions GmbH
A26361-K1002-Z220-1-7619, Edition 2
2009/08

Produced by
XEROX Global Services

ESPRIMO C

Operating Manual

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Your ESPRIMO C

... is available with various configuration levels which differ in terms of hardware and software. You can install accessible drives (for example a DVD drive) and other modules.

This manual tells you how to start using your device and how to operate it in daily use. This manual applies for all configuration levels. Depending on the chosen configuration level, some of the hardware components described may not be available on your PC. Please also observe the notes on your operating system.

Depending on the configuration selected, the operating system is preinstalled on your hard disk (e.g. Windows Vista).

Your device has a number of security features to ensure that no unauthorized persons can access your data. You can lock your device mechanically. The security functions in the *BIOS Setup* also allow you to protect access to your data, e.g. by assigning password protection. In addition, systems with a SmartCard reader offer additional protection.

With certain operating systems, *DeskUpdate* offers a simple and fast way to install the latest drivers and operating system upgrades using just a few mouse clicks. *DeskUpdate* is included on the "Drivers & Utilities" DVD.

Further information on this device is also provided:

- in the "Getting Started" poster
- in the "Safety" manual
- in the "Warranty" manual
- in the operating manual for the monitor
- in the manual for the mainboard
- in the documentation for your operating system
- in the information files (e.g. *.PDF, *.HTML, *.DOC, *.CHM, *.TXT, *.HLP)

Some of the manuals listed can be found in electronic form on the "Drivers & Utilities" DVD.

You can access and view the required information using the *Acrobat Reader* program, which is also included on the DVD. It is of course also possible to print out a copy of the manual if required.

Notational conventions

	Pay particular attention to text marked with this symbol. Failure to observe these warnings could pose a risk to health, damage the device or lead to loss of data. The warranty will be invalidated if the device becomes defective through failure to observe these warnings.
	Indicates important information for the proper use of the device.
►	Indicates an activity that must be performed
↳	Indicates a result
`This font`	indicates data entered using the keyboard in a program dialogue or command line, e.g. your password ((**`Name123`**) or a command used to start a program (**`start.exe`**)
`This font`	indicates information that is displayed on the screen by a program, e.g.: `Installation is complete.`
This font	indicates • terms and texts used in a software interface, e.g.: Click on *Save* • names of programs or files, e.g. *Windows* or *setup.exe*.
"This font"	indicates • cross-references to another section, e.g. "Safety information" • cross-references to an external source, e.g. a web address: For more information, go to "http://ts.fujitsu.com" • Names of CDs, DVDs and titles or designations of other materials, e.g.: "CD/DVD Drivers & Utilities" or "Safety" Manual
Abc	indicates a key on the keyboard, e.g: F10
This font	indicates terms and texts that are emphasised or highlighted, e.g.: **Do not switch off the device**

Important notes

In this chapter you will find information regarding safety which it is essential to take note of when working with your device.

Safety information

Pay attention to the information provided in the "Safety" manual and in the following safety notes.

When installing and operating the device, please observe the notes on environmental conditions in Chapter "Technical data", Page 47 as well as the instructions in Chapter "Getting started", Page 6.

When setting up the device, make sure there is clearance all around it so that the casing receives enough ventilation. In order to avoid overheating, do not cover the ventilation areas of the monitor or the device.

You must only operate the device if the rated voltage used by the device is set to the local mains voltage.

Check the rated voltage set for this device (see "Getting started", Page 6).

The main switch (if present) and the ON/OFF switch do not disconnect the device from the mains voltage. To completely disconnect from the mains voltage, remove the power plug from the power socket.

Replace the lithium battery on the mainboard in accordance with the instructions in the "Replacing the lithium battery", Page 46 chapter.

Caution, components in the system can get very hot.

The activities described in these instructions must always be performed with the greatest care.

Repairs to the device must only be carried out by qualified technicians. Incorrect repairs could put the user at great risk (electric shock, hazardous energy emissions, risk of fire) or cause serious damage to the equipment.

Transporting the device

Transport all parts separately in their original packaging or in a packaging which protects them from knocks and jolts, to the new site.

Do not unpack them until all transportation manoeuvres are completed.

If the device is brought from a cold environment into the room where it will be used, condensation may occur. Before operating the device, wait until it is absolutely dry and has reached approximately the same temperature as the installation site.

Cleaning the device

Turn off all power and equipment switches and remove the power plug from the mains supply.

Do not clean any interior parts yourself, leave this job to a service technician.

Do not use any cleaning agents that contain abrasives or may corrode plastic (alcohol, thinner or acetone).

Never clean the device with water! Water entering into the device could present a serious risk to users (e.g. electric shock).

Ensure that no liquid enters the system.

The surface can be cleaned with a dry cloth. If particularly dirty, use a cloth that has been moistened in mild domestic detergent and then carefully wrung out.

Use disinfectant wipes to clean the keyboard and the mouse.

Energy saving, disposal and recycling

Further information can be found on the "Drivers & Utilities" DVD.

CE marking

The shipped version of this device complies with the requirements of EEC directives 2004/108/EC "Electromagnetic compatibility" and 2006/95/EC "Low voltage directive".

CE marking for devices with radio component

This equipment complies with the requirements of Directive 1999/5/EC of the European Parliament and Commission from 9 March, 1999 governing Radio and Telecommunications Equipment and mutual recognition of conformity.

This equipment can be used in the following countries:

Belgium	Bulgaria	Denmark	Germany
Estonia	Finland	France	Greece
UK	Ireland	Iceland	Italy
Latvia	Liechtenstein	Lithuania	Luxembourg
Malta	Netherlands	Norway	Austria
Poland	Portugal	Rumania	Sweden
Switzerland	Slovakia	Slovenia	Spain
Czech Republic	Hungary	Cyprus	

Contact the corresponding government office in the respective country for current information on possible operating restrictions. If your country is not included in the list, then please contact the corresponding supervisory authority as to whether the use of this product is permitted in your country.

FCC Class B Compliance Statement

The following statement applies to the products covered in this manual, unless otherwise specified herein. The statement for other products will appear in the accompanying documentation.

NOTE:

This equipment has been tested and found to comply with the limits for a "Class B" digital device, pursuant to Part 15 of the FCC rules and meets all requirements of the Canadian Interference-Causing Equipment Standard ICES-003 for digital apparatus. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in strict accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Fujitsu Technology Solutions GmbH is not responsible for any radio or television interference caused by unauthorized modifications of this equipment or the substitution or attachment of connecting cables and equipment other than those specified by Fujitsu Technology Solutions GmbH. The correction of interferences caused by such unauthorized modification, substitution or attachment will be the responsibility of the user.

The use of shielded I/O cables is required when connecting this equipment to any and all optional peripheral or host devices. Failure to do so may violate FCC and ICES rules.

Getting started

Please observe the safety information in the "Important notes", Page 3 chapter.

Unpacking and checking the delivery

It is recommended not to throw away the original packaging material! It may be required for reshipment at some later date.

- ► Unpack all the individual parts.
- ► Check the contents of the package for any visible damage caused during transport.
- ► Check whether the delivery conforms to the details in the delivery note.
- ► If the delivery does not correspond to the delivery note or if any part of the delivery is damaged, please notify your local sales outlet immediately.

Steps for initial setup

Only a few steps are necessary to put your new device into operation for the first time:

- Select a location for device and set up device
- Connecting external devices
- Check the voltage at the mains outlet and connect the device to an electrical outlet
- Switch the device on

You will learn more about the individual steps in the following sections.

External devices

If you have received other external devices in addition to your own device (e.g. a printer), do not connect these until after the initial installation. The following sections describe how to connect these external devices.

Drives and boards

If you have received drives or boards with your device, please do not install them until after first-time setup. How to install drives and boards is described in the "System expansions", Page 27 chapter.

Setting up the device

When installing your device, please read the recommendations and safety notes in the "Safety" manual.

Only install the device in the operating positions for which it is intended.

We recommend that you place your device on a surface with good anti-slip qualities. In view of the multitude of different finishes and varnishes used on furniture, it is possible that the rubber feet will mark the surface they stand on.

Do not expose the device to extreme environmental conditions (see "Technical data", Page 47). Protect the device against dust, humidity and heat.

Make sure that the device is adequately ventilated.

In order to avoid overheating, do not cover the ventilation area of the monitor or the device.

Do not stack several devices on top of each other.

If you place a monitor on the device, it may weigh a maximum of 25 kg. Make sure that you do not block any ventilation slots on the device.

Depending on the location of your device, bothersome vibrations and noises may occur. To prevent this, a distance of at least 10 mm should be maintained from other devices on casing sides without ventilation surfaces.

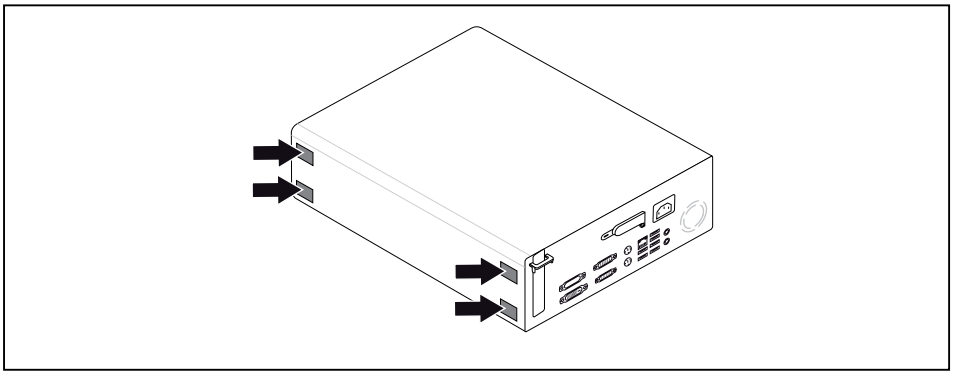
In addition, we recommend placing the device on support feet, as these buffer vibrations.

You can use the device in a vertical or horizontal operating position.

Vertical operating position (optional)

Proceed as follows to operate the device in the vertical operating position:

- ► Disconnect the cables if required.
- ► Pull off the foil from the rubber/plastic feet included in the pack of accessories.
- ► Stick the rubber/plastic feet to the underside of the casing. In order to ensure a that the unit is stable, the rubber/plastic feet should be located in approximately the positions shown in the illustration.

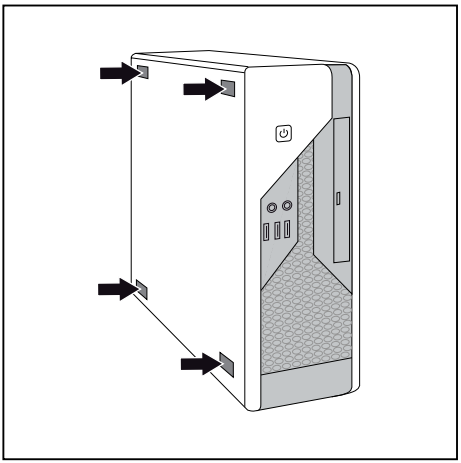


- ► Place the device vertically on the rubber/plastic feet.
- ► If necessary, reconnect any cables that were previously disconnected.

Horizontal operating position with rubber/plastic feet

The horizontal operating position is only permitted with the rubber/plastic feet (due to the heat generated on the underside).

- ► If necessary, disconnect the cables.
- ► Place the device on its upper side on a sturdy, flat and clean surface.



- ► Stick the rubber/plastic feet (1) to the underside of the casing.
- ► To ensure a that the device is stable, the rubber/plastic feet should be fixed in similar positions to the ones shown in the illustration.
- ► Place the device on the rubber/plastic feet.
- ► If necessary, reconnect any cables that were previously disconnected.

Connecting external devices

Read the documentation on the external device before connecting it.

With the exception of USB devices, always remove all power plugs before connecting external devices!

Do not connect or disconnect cables during a thunderstorm.

Always take hold of the actual plug. Never unplug a cable by pulling the cable itself.

Connect and disconnect the cables in the order described below.

Connecting the cables

- ► Turn off all power and equipment switches.
- ► Remove all power plugs from the grounded mains outlets.
- ► Connect all the cables to the device and the external devices. Please make sure that you always observe the safety notes provided in "Important notes", Page 3.
- ► Plug all data communication cables into the appropriate sockets.
- ► Plug all power cables into the grounded mains outlets.

USB devices are hot-pluggable. This means you can connect and disconnect USB cables while your device is switched on.

Additional information can be found in "Connecting external devices to the USB ports", Page 13 and in the documentation for the USB devices.

Disconnecting the cables

- ► Switch off all affected devices.
- ► Remove all power plugs from the grounded mains outlets.
- ► Unplug all data communication cables from the appropriate sockets.
- ► Disconnect all of the cables from the device and from the external devices.

Ports on the device

The ports are located on the front and back of the device. Not all ports are necessarily present on your device. The standard ports are marked with the symbols shown below (or similar). Detailed information on the location of the connections is provided in the manual for the mainboard.

Keyboard port, purple

Parallel port/printer (optional)

Serial port 1, turquoise

Serial port 2, turquoise

Monitor port, blue

Microphone jack, pink

Headphones jack, light green

Audio input (Line in), light blue

Audio output (Line out), light green

PS/2 mouse port, green

USB - Universal Serial Bus, black

LAN port

DVI interface

Some of the connected devices require special software (e.g. drivers) (refer to the documentation for the connected device and operating system).

Connecting a monitor

- ► Follow the instructions contained in the monitor manual to prepare the monitor for use (e.g. connect the cables).
- ► Plug the data cable into the monitor port on the device.

Depending on the configuration level of the device and the monitor, you can also connect the data cable to the DVI interface.

- ► Plug the monitor power cable into a grounded mains outlet.

Connecting the mouse

Depending on the equipment level selected, your device will be supplied with a USB mouse or a PS/2 mouse.

Connecting a USB mouse

► Connect the USB mouse to one of the USB ports on the device.

Connecting a PS/2 mouse

If you do not attach a mouse to the PS/2 mouse port, you can disable the mouse controller in the *BIOS Setup* in order to free the IRQ12 for a different application.

► Connect the PS/2 mouse to the PS/2 mouse port of the device.

Connecting the keyboard

Depending on the equipment level selected, your device will be supplied with a USB keyboard or a PS/2 keyboard.

Connecting a USB keyboard

Use the supplied keyboard cable only.

► Plug the rectangular connector of the keyboard cable into the rectangular socket on the underside or on the rear of the keyboard.

► Insert the flat rectangular USB plug of the keyboard cable into one of the device's USB ports.

Connecting a PS/2 keyboard

Use the supplied keyboard cable only.

► Plug the rectangular connector of the keyboard cable into the rectangular socket on the underside or on the rear of the keyboard.

► Plug the round plug of the keyboard cable into the keyboard port on the device.

Connecting external devices to the parallel (optional) or serial port

External devices can be connected to the parallel or serial port (e.g. a printer or a modem).

► Connect the data cable to the external device.

► Depending on the device, connect the data cable to the parallel port or the serial port.

↳ For an exact description of how to connect external devices to the corresponding port, please refer to the documentation of the external device.

Port settings

You can change the port settings (e.g. address, interrupt) in the *BIOS Setup*.

Device drivers

The devices connected to the parallel or serial port require drivers. Your operating system already includes many drivers. If the required drive is missing, install it. Current drivers are usually available on the Internet or will be supplied on a data carrier.

Connecting external devices to the USB ports

You can connect a wide range of external devices to the USB ports (e.g. printer, scanner, modem or keyboard).

USB devices are hot-pluggable. This means you can connect and disconnect USB cables while your device is switched on.

Additional information can be found in the documentation for the USB devices.

- ► Connect the data cable to the external device.
- ► Connect the data cable to one of the USB ports on your device.

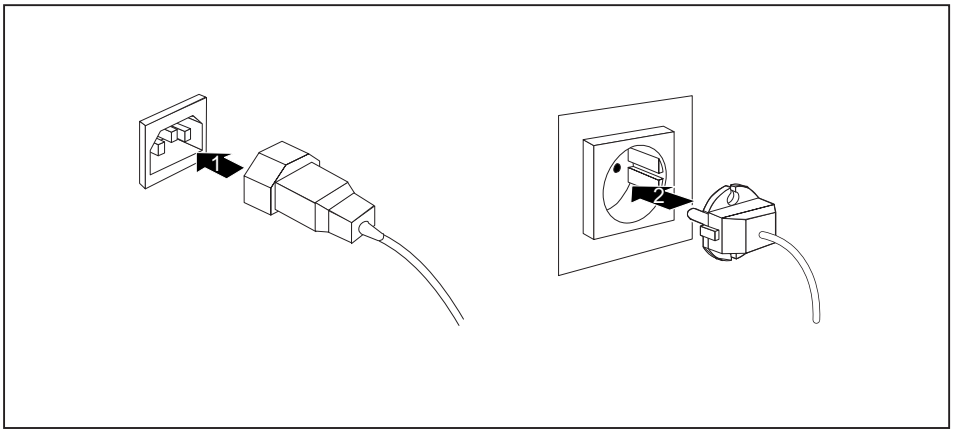
Device drivers

The external USB devices you connect to the USB ports usually require no driver of their own, as the required software is already included in the operating system. However, if the external USB device requires its own software, please install it from the data carrier provided with the USB device.

To ensure the transmission capacity of USB 2.0, the cable from the external USB device to the USB port of your device must not be longer than 3 m.

Connecting the device to the mains voltage

► Check the voltage setting.



► Connect the power cable to the device.

► Plug the power plug into a properly grounded mains outlet.

The device is fitted with a wide voltage range power supply. This means you do not need to set the nominal voltage manually for these devices. Therefore there is no switch available for the voltage setting.

Switching on for the first time: installing the software

Once the installation has been started the device must not be switched off, unless the installation has been completed.

During installation, the device may only be rebooted when you are requested to do so!

The installation will otherwise not be carried out correctly and the contents of the hard disk must be completely restored.

If the device is integrated into a network, the user and server details as well as the network protocol are required during the software installation.

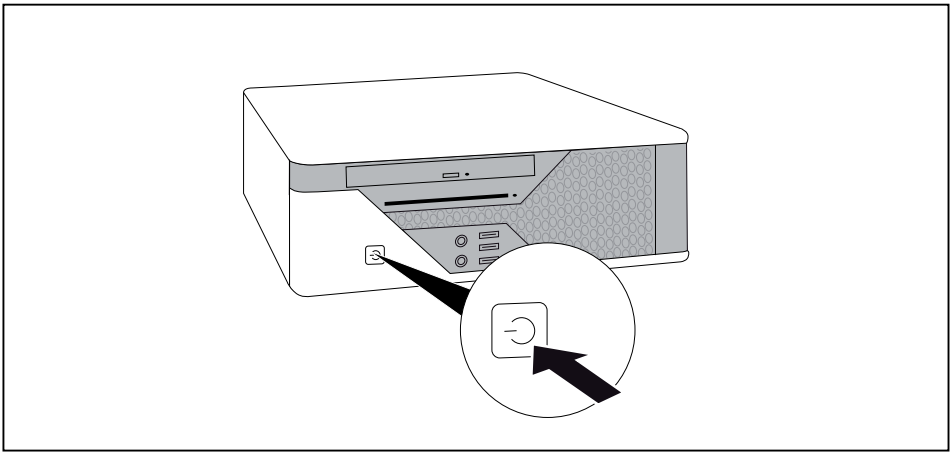
Contact your network administrator if you have any questions about these settings.

When you switch on the device for the first time, the supplied software is installed and configured. Plan a reasonable amount of time for this, as this process must not be interrupted.

You may need the licence number for Windows during the installation. The licence number is located on a sticker on your device.

Switch on the monitor and the machine

► Switch on the monitor (see operating instructions for the monitor).



► Press the on/off button on the front of the machine.

↳ The operational display will light up and the machine will start.

Installing the software

► During installation, follow the on-screen instructions.

► If anything is unclear regarding the data you are asked to input, read the online Help in your operating system.

You will find more information on the system, as well as drivers, utilities and updates on the "Drivers & Utilities" DVD and on the Internet under "http://ts.fujitsu.com/support/".

Operation

Switch the device on

► If necessary, switch the monitor on (see the operating manual for the monitor).
► Press the ON/OFF switch on the front of the device.
↳ The power-on indicator lights green and the device is started.

Switching off the device

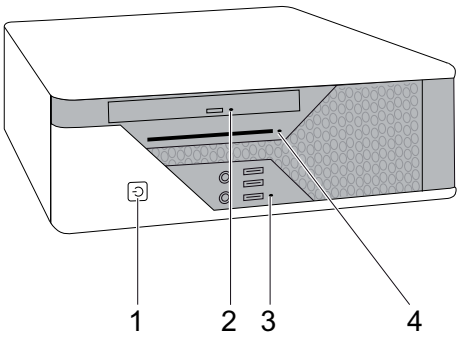
► Shut down the operating system properly.
► If the operating system does not automatically switch the device into power-saving mode or switch it off, press the ON/OFF switch for at least 4 seconds.
↳ The device then consumes a minimum amount of energy.

The ON/OFF switch does not fully disconnect the TV from the mains voltage. To completely disconnect the mains voltage, remove the power plug from the power socket.

► If necessary, switch the monitor off (see the operating manual for the monitor).

Indicators on the device

The indicators are located on the front of the casing. Which indicators are available on your device depends on the configuration level you have selected.



1 = Power indicator
2 = DVD indicator
3 = Hard disk indicator
4 = SmartCard reader indicator

Power indicator

In power-saving mode the device must not be disconnected from the mains supply, as this could otherwise result in a loss of data.

- The indicator lights up green:The device is switched on.
- The indicator flashes green:The system is in power-saving mode. After being switched on with the ON/OFF switch, the device powers up or returns to the state it was in before it went into power-saving mode.
- The indicator does not light up:The device is disconnected from the mains supply or is ready for operation. If the device is ready it can be switched on with the ON/OFF switch.

Hard disk indicator

The indicator lights up when the hard disk drive of the device is accessed.

DVD indicator

The indicator lights up when the DVD drive in the device is being accessed. Never remove the DVD while the indicator is illuminated.

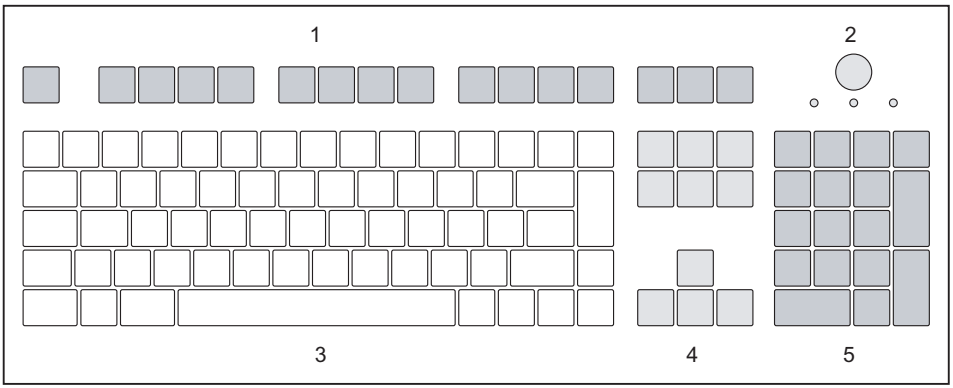
SmartCard reader indicator (optional)

The indicator lights up if a SmartCard is inserted.

The indicator flashes if no SmartCard is inserted.

Keyboard

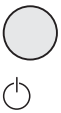
The illustrated keyboard is an example and may differ from the model you use.



1 = Function keys
2 = On/off switch (optional)
3 = Alphanumeric keypad
4 = Cursor keys
5 = Numeric keypad (calculator keypad)

Important keys and keyboard shortcuts

The description of the following keys and keyboard shortcuts applies to Microsoft operating systems. Details of other keys and keyboard shortcuts can be found in the documentation for the relevant application program.



On/off switch (optional)

Depending on the setting in the BIOS Setup, the device can be switched on or off with this switch. Some operating systems allow you to configure additional functions of the ON/OFF switch in the Control Panel.

With some keyboards the ON/OFF switch can only be used with an ACPI (Advanced Configuration and Power Management Interface). Otherwise the key is inoperative. The mainboard must support this function.

Enter key

confirms the highlighted selection. The Enter key is also referred to as the "Return" key.

Start key

calls up the Windows *Start* menu.

Menu key

calls up the menu for the marked item (Windows).

Shift key

enables upper-case letters and the upper key symbols to be displayed.

Alt Gr key

produces a character shown on the bottom right of a key (e.g. the @ sign on the Q key).

Num Lock key

By pressing the Num Lock key you switch between the upper- and lower-case levels of the calculator keypad.

When the Num Lock indicator is lit the numeric keypad and arithmetic keys are active.

When the Num Lock indicator is not lit the cursor control functions on the Numeric keypad are active.

Ctrl key

performs a special operation when pressed in conjunction with another key. The Ctrl key is also referred to as "Control" or the "Control key".

Ctrl + Alt + Del

calls up the menu which you can use to shut down, lock and log off from the computer.

You can also use this key combination to access the *Windows Task Manager* or change your Windows password.

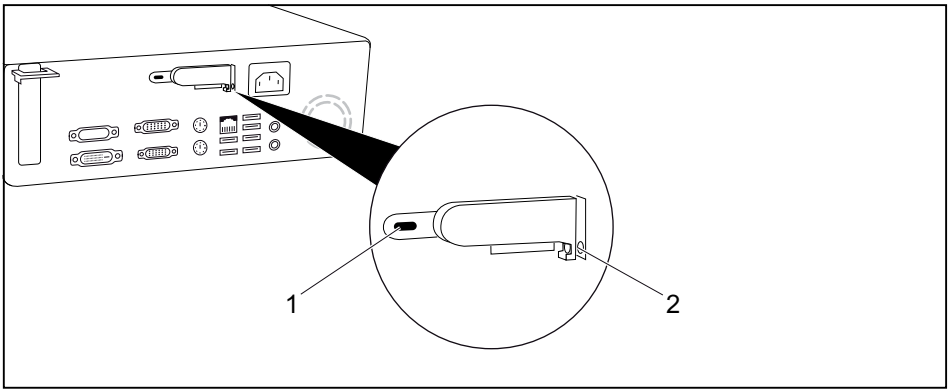
Settings in BIOS Setup

In *BIOS Setup*, you can set the system functions and the hardware configuration of the device. When the PC is delivered, the default entries are valid (see "BIOS Setup" manual or manual for the mainboard). You can customise these settings to your requirements in the *BIOS Setup*.

Property and data protection

Software functions and mechanical locking offer a broad range of functions for protecting your device and your personal data from unauthorised access. You can also combine these functions.

Anti-theft protection



1 = Kensington Lock

2 = Holes for padlock

You can protect your device against theft

- with the Kensington Lock device (1) and a Kensington MicroSaver. You can only attach the Kensington Lock if the sliding locking mechanism is set to the left, thereby locking the casing. Please consult the manual for your Kensington Lock.
- with the holes (2), a padlock and a chain, which you have connected to a fixed object beforehand.

BIOS setup security functions

The *Security* menu in *BIOS Setup* offers you various options for protecting your personal data against unauthorized access, e.g.:

- Preventing unauthorised access to *BIOS Setup*
- Preventing unauthorised system access
- Preventing unauthorised access to the settings of boards with their own BIOS
- Preventing the system from booting from the diskette drive
- Issuing virus warnings
- Preventing the unauthorised writing of floppy disks
- Protecting BIOS from overwriting
- Protecting the device from being switched on by an external device

You can also combine these functions.

You will find a detailed description of the *Security* menus and how to assign passwords in the manual for the mainboard or in the "BIOS Setup" manual.

Access authorization via SmartCard (optional)

In systems equipped with a SmartCard reader, access can be restricted to those users who have a corresponding SmartCard.

Access protection with SystemLock (optional)

With *SystemLock*, you can protect your system from unauthorized booting. Then a system can only be booted when the user inserts a valid SmartCard in the SmartCard reader and enters his/her personal identification number (PIN). To use *SystemLock*, you will require the following components:

- External or internal SmartCard reader
- *SystemLock* installed (refer to the "BIOS Setup" manual)
- SmartCard

SystemLock controls access to your device. When a SmartCard is initialized, permissions are assigned for system access (system, setup, system+setup, admin). You can configure several SmartCards for one system and initialize them with different permissions. In addition, you can protect access to your hard disk

In this way users can be divided into user groups. Users of a user group use SmartCards with the same permissions.

If you also want to use other security software in addition to *SystemLock* (e.g. *SMARTY*), please read the documentation on your security software beforehand.

SystemLock permissions

You can initialize a SmartCard with one of the following permissions:

System	The system starts following entry of the user PIN. You can change the user PIN.
Setup	You can open and change the *BIOS Setup* and change the user PIN.
System+Setup	The system starts following entry of the user PIN. You can open and change the *BIOS Setup* and change the user PIN.
Admin	The system starts following entry of the user PIN. You can change the user PIN and the administrator PIN, unlock locked SmartCards, open and change the *BIOS Setup* and generate additional SmartCards for this system.

For instructions on how to install and operate *SystemLock*, and how to initialize SmartCards, refer to the "BIOS Setup" manual.

Troubleshooting and tips

Refer to the safety notes in the "Safety" manual and in the "Getting started", Page 6 chapter when connecting or disconnecting cables.

If a fault occurs, try to correct it as described in the following documentation:

- in this chapter
- in the documentation for the connected devices
- in the help systems of the software used
- in the documentation for your operating system

Help if problems occur

Should you ever have a problem with your computer that you cannot solve yourself, in many cases you can solve it quickly using the *SystemDiagnostics* program pre-installed on your computer.

► To start the *SystemDiagnostics* programme, click on *Startsymbol - Program - Fujitsu - SystemDiagnostics*

► If a problem is detected during the test run, the *SystemDiagnostics* program outputs a code (e.g. DIFS code YXXX123456789123).

► Take a note of this DIFS code and the ID number of your device. The ID number can be found on the type rating plate on the back of the casing.

► For further clarification of the problem, contact the Help Desk for your country (see the Help Desk list or visit the Internet at "http://ts.fujitsu.com/support"). For this, please have ready the ID number & serial number of your system and the DIFS code.

Troubleshooting

Power-on indicator does not light up after the device is switched on

Cause	Corrective measure
The mains power supply is faulty.	► Check whether the power cable is properly plugged into the device and into a grounded mains outlet. ► Switch the device on.
Internal power supply overloaded.	► Pull the power plug for the device out of the grounded mains outlet. ► Wait for a moment. ► Plug the power plug back into a grounded mains outlet. ► Switch the device on.

The device cannot be switched off with the ON/OFF switch

Cause	Remedy
The device has not been switched on with the ON/OFF switch.	► Press the ON/OFF switch again.
System crash	► Keep the on/off switch pressed for at least 4 seconds until the machine switches off. Caution: This can lead to a loss of data! This procedure does not allow the operating system to shut down in an orderly way. The next time the system is started there may well be error messages.

Monitor remains blank

Cause	Remedy
Monitor is switched off.	► Switch your monitor on.
Power saving has been activated (screen is blank)	► Press any key on the keyboard. **or** ► Deactivate the screen saver. If necessary, enter the appropriate password.
Brightness control is set to dark	► Adjust the brightness control. For detailed information, please refer to the operating manual supplied with your monitor.
Power cable not connected	► Switch off the monitor and the device. ► Check that the monitor power cable is properly connected to the monitor and to a grounded mains outlet or to the monitor socket of the device. ► Check that the device power cable is properly plugged into the device and a grounded mains outlet. ► Switch on the monitor and the device.
Monitor cable not connected	► Switch off the monitor and the device. ► Check that the monitor cable is properly connected to the device and monitor. ► Switch on the monitor and the device.

Cause	Remedy
Wrong monitor has been set under Window XP	► Restart the device. ► Press F8 while the system is booting. Either the *Windows Advanced Start Options* menu or the menu for selecting the operating system appears. ► If the menu for selecting the operating system appears, press F8. ► Select *Safe Mode* or *Safe Mode with Network*. ► Go to *Start – Settings – Control Panel – Display* and the tabs *Appearance*, *Themes*, *Settings* to set the correct values for the connected monitor as described in the operating manual of the monitor.
Wrong monitor has been set under Windows Vista	► Restart the device. ► Press F8 while the system is booting. Either the *Windows Advanced Start Options* menu or the menu for selecting the operating system appears. ► If the menu for selecting the operating system appears, press F8. ► Select *Safe Mode* or *Safe Mode with Network*. ► Go to *Start symbol – (Settings) – Control Panel – Appearance and Personalization – Personalization* and enter the correct values for the connected monitor as described in the operating manual of the monitor.
Wrong monitor has been set under Windows 7	► Restart the device. ► Press F8 while the system is booting. Either the *Windows Advanced Start Options* menu or the menu for selecting the operating system appears. ► If the menu for selecting the operating system appears, press F8. ► Select *Safe Mode* or *Safe Mode with Network*. ► Select *Start – Control Panel – Appearance and Themes – Display* to set the correct values for the connected monitor, as explained in the monitor instructions.
The wrong RAM modules have been inserted	► See the technical manual for the mainboard for information on which memory modules can be used.

No mouse pointer displayed on the screen

Cause	Troubleshooting
The mouse is not correctly connected.	► Shut down the operating system properly. ► Switch the device off. ► Check that the mouse cable is properly connected to the system unit. If you use an adapter or extension lead with the mouse cable, check the connections. ► Make sure that only one mouse is connected. ► Switch the device on.
The mouse controller is not enabled.	The mouse controller must be enabled, if you use a PS/2 mouse. ► Check in the *BIOS-Setup* whether the mouse controller is *enabled*. ► Check that the mouse driver is properly installed and is present when the application programme is started. Detailed information can be found in the user guide for the mouse and application programme.

Time and/or date is not correct

Cause	Remedy
Time and date are incorrect.	► Set the correct time and date within the operating system you are using. **or** ► Set the correct time and/or date in the *BIOS Setup*.
The lithium battery on the mainboard is flat.	► If the time and date are repeatedly wrong when you switch on your device, replace the lithium battery (see "Replacing the lithium battery", Page 46).

Error messages on the screen

Error messages and their explanations are provided:

- in the "BIOS Setup" manual
- in the technical manual for the mainboard
- in the documentation for the programs used

Installing new software

When installing programs or drivers, important files may be overwritten and modified. To be able to access the original data in the event of any problems following installation, you should backup your hard disk prior to installation.

Hard disk contents, restoring

The instructions can be found on the case of the Recovery DVD.

Tips

Topic	Tip
Out of system resources	► Close unnecessary applications. **or** ► Run the applications in a different order.

System expansions

Repairs to the device must only be carried out by qualified technicians. Unauthorised opening or incorrect repair may greatly endanger the user (electric shock, fire risk) and will invalidate your warranty.

After consulting the Hotline/Help Desk, you may remove and install the components described in this manual yourself.

If you remove or install components without consulting the Hotline/Help Desk, then the warranty of your device will become void.

As the device has to be shut down in order to install/deinstall system hardware components, it is a good idea to print out the relevant sections of this chapter beforehand.

If further documentation was delivered with your device, please also read this through carefully.

In addition, before removing or installing system components, please pay attention to the following:

The device must be switched off when installing/removing the system expansions and may not be in energy-saving mode.

Remove the power plug before opening the device.

Be careful that no wires become trapped when removing or installing components.

When installing components that become very hot, make sure that the maximum permissible temperature is not exceeded.

An update of the BIOS may be required for a system expansion or hardware upgrade. Further information can be found in the BIOS help section or if necessary in the Technical Manual for the mainboard.

Information about boards

Take care with the locking mechanisms (catches and centring pins) when you are replacing boards or components on boards.

To prevent damage to the board or the components and conductors on it, please take care when you insert or remove boards. Make sure expansion boards are inserted straightly.

Never use sharp objects (screwdrivers) for leverage.

Boards with electrostatic sensitive devices (ESD) are identifiable by the label shown.

When handling boards fitted with ESDs, you must always observe the following points:

- You must always discharge static build up (e.g. by touching a grounded object) before working.
- The equipment and tools you use must be free of static charges.
- Only touch or hold the boards by the edge or, if present, at the areas marked green (Touch Points).
- Never touch pins or conductors on boards fitted with ESDs.

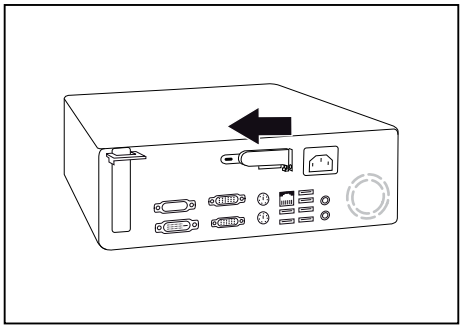
Opening the casing

Please read the relevant safety notes in "Important notes".
Disconnect the power plug from of the mains outlet.

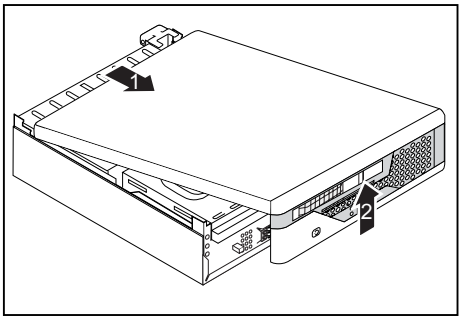
► Switch the device off.

The device must not be in power-saving mode.

► Remove all cables from the casing.
► Place the casing in a convenient working position.
► If necessary, unlock the casing.

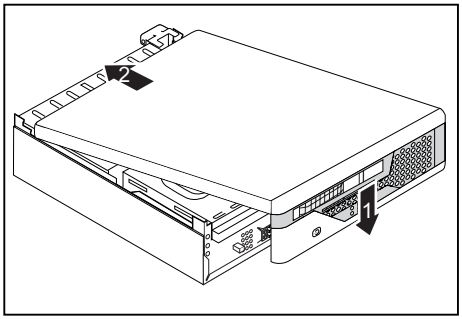


► Push the sliding locking mechanism past a slight resistance in the direction of the arrow to unlock the housing.



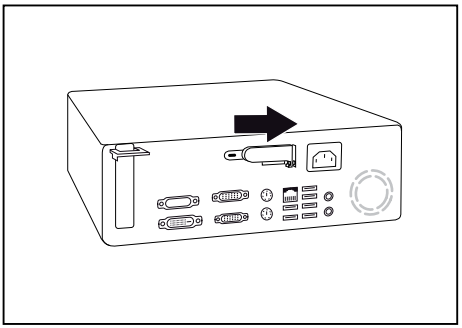
► Push the casing top cover as far as it will go (approximately 20 mm) in the direction of the arrow (1) and lift it off at an angle in the direction of the arrow (2).

Closing the casing



► Position the upper part of the casing from above in the direction of the arrow (1) onto the lower part of the casing so that the distance to the rear edge of the casing is approximately 20 mm.

► Push the upper part of the casing in the direction of the arrow (2) until it engages.



► To lock the housing, push the sliding locking mechanism back in the direction of the arrow until it engages.

► Lock the casing again if necessary.

► Return the system unit to its original position.

► Reconnect the cables that you disconnected previously.

Installing and removing a board

Please read the section "Notes on boards".

You can only install low-profile boards.

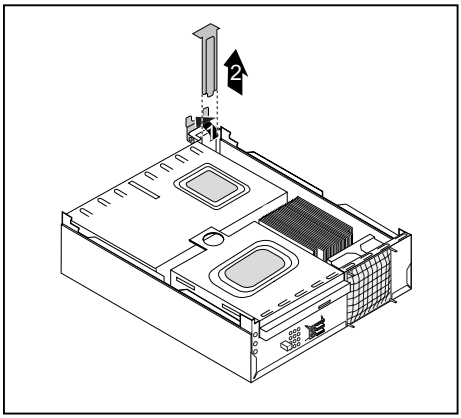
To install a board please follow the steps below.

- Opening the retaining clip for the board
- Installing a board
- Closing the retaining clip

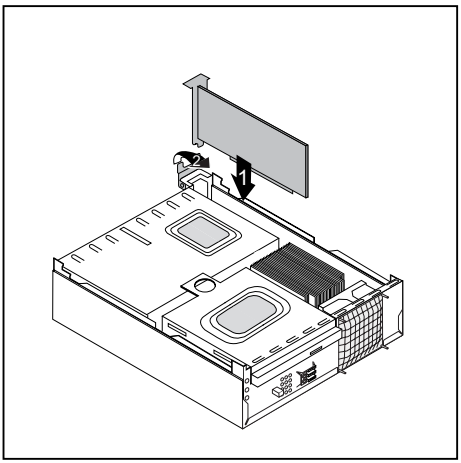
You will learn more about the individual steps in the following sections.

Installing a board

Do not throw the slot cover away. If you remove the board again, you will need to install the slot cover again (cooling, fire protection or EMC regulations which need to be complied with).



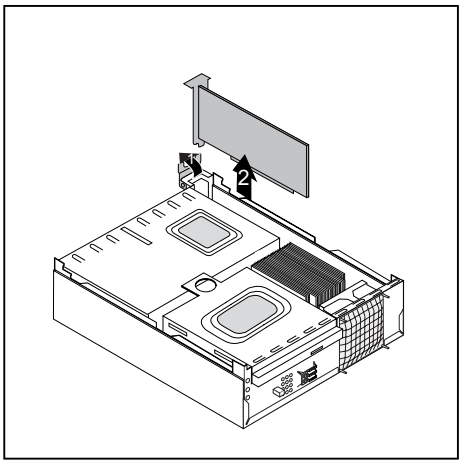
- ► Open the casing (see "Opening the casing", Page 29).
- ► Open the retaining clip (1).
- ► Slide the slot cover upward out of the casing (2).
- ► Make the required settings on the board.



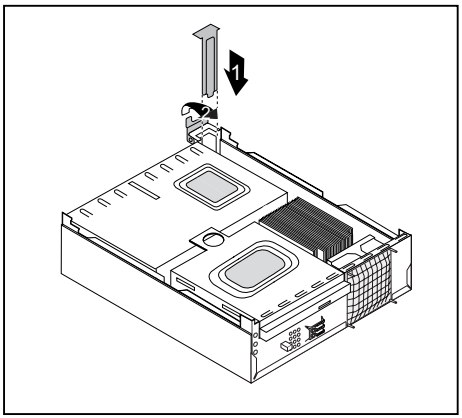
- ► Guide the board into the slot recess (1).
- ► Close the retaining clip (2).
- ► If necessary, connect the cables to the module.

Removing boards

► Open the casing (see "Opening the casing", Page 29).



► If necessary, unplug any cables which are connected to the board.
► Open the retaining clip (1).
► Remove the board out of the casing (2).
► If you do not want to install a new board, reinstall the slot cover.



► Slide the slot cover downward into the rear panel of the casing (1).
► Close the retaining clip (2).
► Close the casing (see "Closing the casing", Page 30).

If you have installed or removed a PCI board, check the relevant PCI slot settings in the BIOS Setup. Change the settings as required. Further information is provided in the PCI board documentation.

Installing and removing drives

The casing can accommodate a total of two drives:

- one accessible slim drive (one 5 1/4 inch drive)
- one 3 ½-inch hard disk

"Accessible drives" are e.g. DVD or CD ROM drives, into which a data medium can be inserted from the outside. Non-accessible drives are e.g. hard disk drives.

Installing and removing plastic drive covers

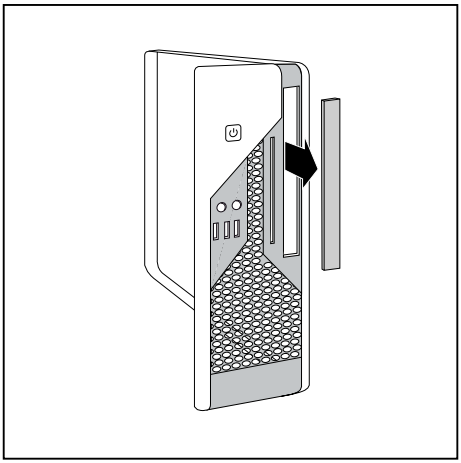
Removing the plastic drive cover

Do not throw away the covers. If you remove the drive again later, you will need to fit the covers again (cooling, fire protection or EMC regulations which need to be complied with).

If you wish to install an accessible drive in an empty bay, you must first remove the plastic drive cover.

► Open the casing (see "Opening the casing", Page 29).

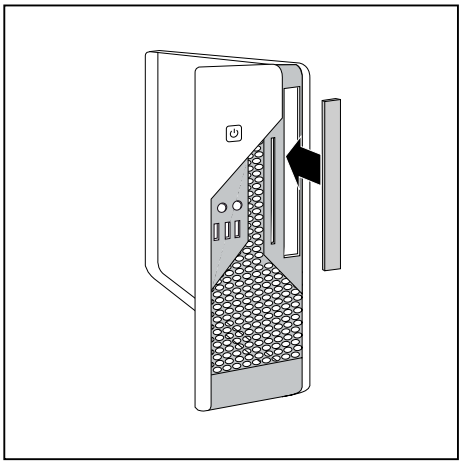
► Lay the casing cover within easy reach on a non-slip surface.



► Gently press the latches of the relevant plastic drive covers forwards and, working from the outside, pull the plastic drive covers out of the front cover.

Installing the plastic drive cover

Depending on the drive, e.g. if you wish to remove the accessible drive, you may need to refit the plastic drive cover again afterwards.

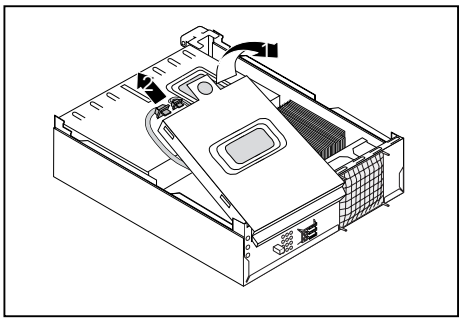


- ► Insert the drive cover in the direction of the arrow into the front panel and press the latches lightly into the corresponding brackets.
- ► Close the casing (see "Closing the casing", Page 30).

Installing and removing the drive cage

Removing the drive cage

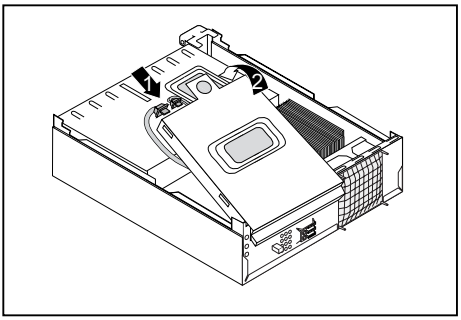
► Open the casing (see "Opening the casing", Page 29).



- ► Fold up the drive cage at an angle (1).
- ► If a drive is present, disconnect the connector of the data and power supply cables from the drive (2).
- ► Take out the drive cage from the casing mounts.

Installing the drive cage

► Open the casing (see "Opening the casing", Page 29).

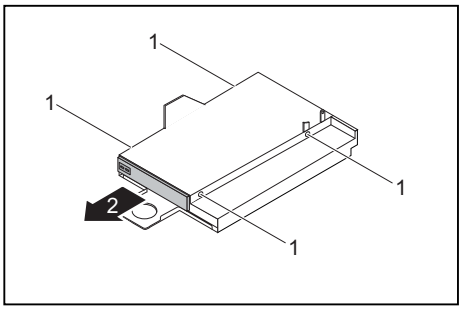


► Push the drive cage at an angle into the casing mounts (1).
► If a drive is present, connect the connector of the data and power supply cables (2).
► Close the drive cage.
► Close the casing (see "Closing the casing", Page 30).

Installing and removing an accessible 5 1/4-inch drive

Removing an accessible 5 1/4-inch slim drive

► Open the casing (see "Opening the casing", Page 29).
► Remove the drive cage (see "Removing the drive cage", Page 34).



► Remove the screws from the drive cage (1).
► Take the drive out of the drive cage (2).
► Install the drive cage again (see "Installing the drive cage", Page 35).
► If you do not want to install a new drive, you must refit the plastic drive cover again (see "Installing the plastic drive cover", Page 34).

► Close the casing (see "Closing the casing", Page 30).

Installing an accessible 5 1/4-inch slim drive

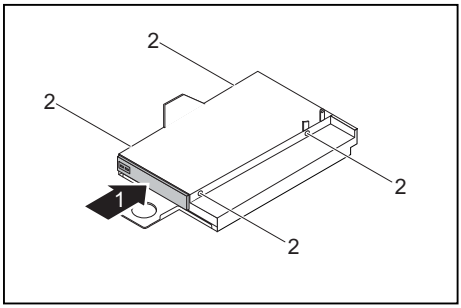
► Open the casing (see "Opening the casing", Page 29).

Do not throw away the covers. If you remove the drive again, you must reinstall the covers (cooling, fire protection or EMC regulations to be complied with).

You must only use the screws recommended by the manufacturer. Long screws could damage the drive or prevent it from working properly.

► If necessary, remove the plastic drive cover (see "Removing the plastic drive cover", Page 33).

► Remove the drive cage (see "Removing the drive cage", Page 34).



► Slide the new drive as far as it will go into the drive cage (1).

► Fasten the screws (2).

► Install the drive cage again (see "Installing the drive cage", Page 35).

► Connect the connector for the data and power cables to the drive.

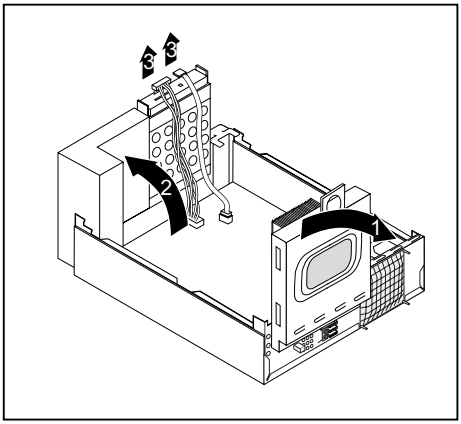
► Close the casing (see "Closing the casing", Page 30).

It may be necessary to modify the entry for the drive in the BIOS Setup accordingly.

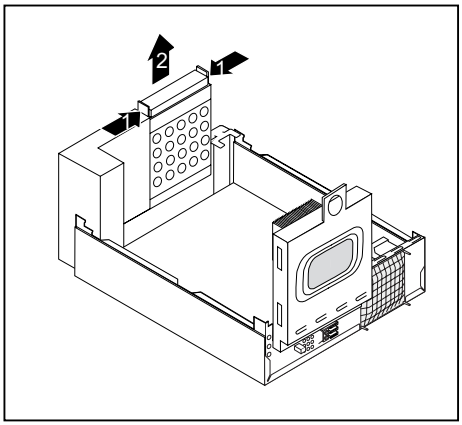
Installing and removing the hard disk drive

Removing the hard disk drive

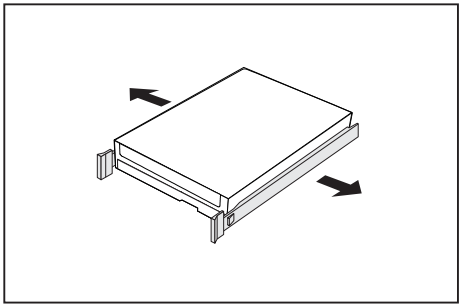
► Open the casing (see "Opening the casing", Page 29).



► Fold up the drive cage (1).
► If there is a drive in the drive cage, disconnect the data and power supply cables from the drive.
► Fold up the hard disk cage (2).
► Pull the data and power supply cable off the hard disk (3).



► Press the two ends of the EasyChange rails together (1) and pull out the hard disk drive (2).



► Release the die EasyChange rails from the hard disk.

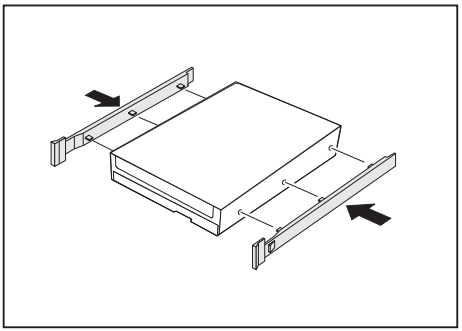
If you do not want to install a new hard disk, keep the EasyChange rails for a future installation.

► Close the casing (see "Closing the casing", Page 30).

Installing the hard disk drive

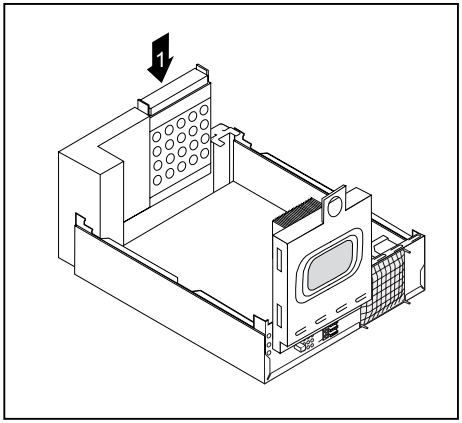
► Open the casing (see "Opening the casing", Page 29).

► Make the required settings (e.g. master setting) on the drive.

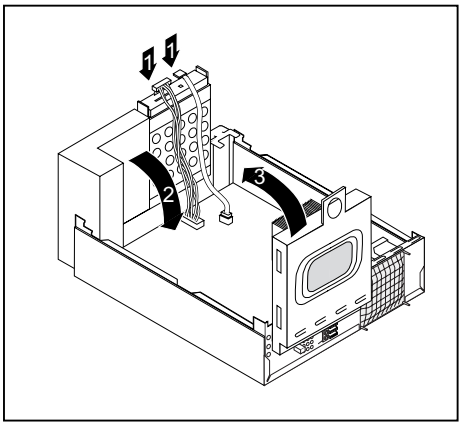


► Attach the EasyChange rails to the hard disk.

► Fold up the hard disk cage.



► Slide the hard disk together with the EasyChange rails into the bay until you feel the hard disk engage(1).



► Attach the data and the power supply connectors at the hard disk drive (1).
► If necessary also attach the data cable at the main board. Refer to the manual for the mainboard.
► If necessary, attach the connectors for the data and power cables at the drive.

Do not connect any cables.

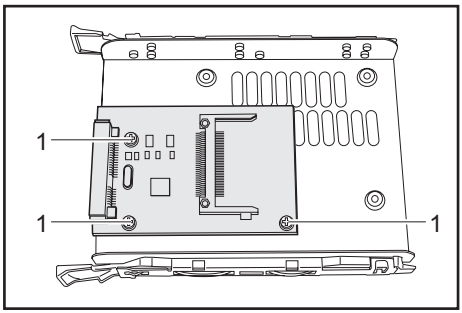
► Fold the hard disk cage downwards (2).
► Fold down the drive cage (3).
► Close the casing (see "Closing the casing", Page 30).

It may be necessary to modify the entry for the drive in the *BIOS Setup*.

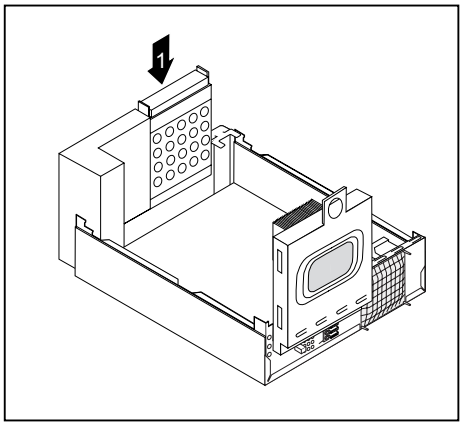
Installing and removing a Compact Flash module (optional)

Installing the Compact Flash module

► Open the casing (see "Opening the casing", Page 29).
► Swing up the drive cage.
► If there is a drive in the drive cage, disconnect the data and power supply cables from the drive.



► Secure the Compact Flash module with the screws (1) to the carrier.

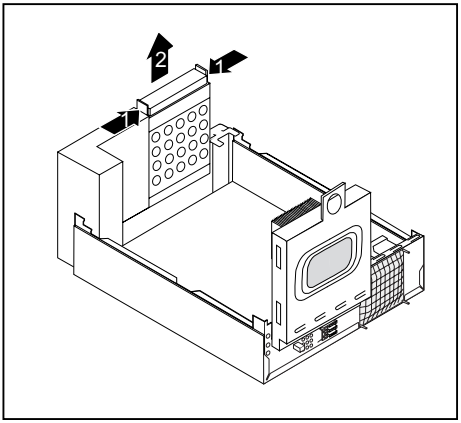


► Slide the Compact Flash module with the EasyChange rails into its bay until the carrier noticeably engages (1).

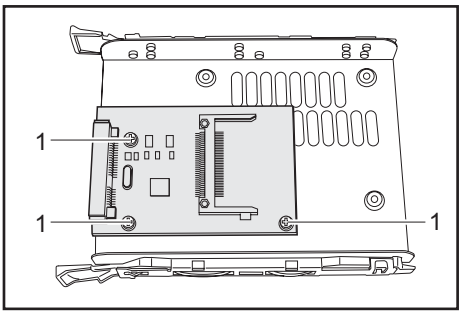
► Connect the connector for the data and power cables to the Compact Flash module.
► Fold down the drive cage.
► Close the casing (see "Closing the casing", Page 30).

Removing the Compact Flash module

- ► Open the casing (see "Opening the casing", Page 29).
- ► Fold up the drive cage.
- ► Disconnect the Compact Flash cable connector from the mainboard. Refer to the manual for the mainboard.



- ► Press the two ends of the EasyChange rails together (1) and pull out the hard disk drive (2).



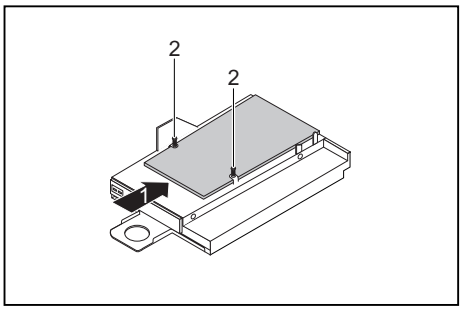
- ► Loosen the screws (1).
- ► Remove the Compact Flash module from its bay.
- ► Fold down the hard disk cage (2).
- ► Close the casing (see "Closing the casing", Page 30).

Installing/removing a SmartCard reader (optional)

In systems equipped with a SmartCard reader, access can be restricted to those users who have a corresponding SmartCard.

Installing the SmartCard reader

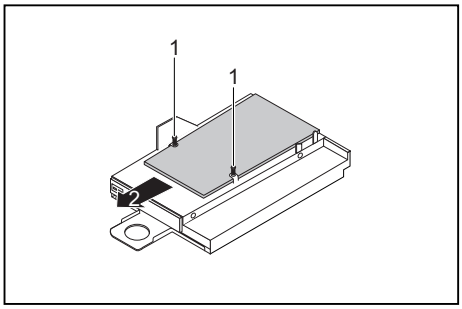
- ► Open the casing (see "Opening the casing", Page 29).
- ► Break out the web at the SmartCard opening on the front cover.



- ► Remove the drive cage (see "Removing the drive cage", Page 34)
- ► Slide the SmartCard reader into the bay provided for it (1) and secure it with the two screws (2).
- ► Make sure that the SmartCard reader is also between the two brackets. Otherwise, you will not be able to insert the SmartCard from outside.
- ► Connect the cable for the SmartCard reader to the mainboard and the SmartCard reader. Refer to the manual for the mainboard.
- ► Install the drive cage again (see "Installing the drive cage", Page 35).
- ► Close the casing (see "Closing the casing", Page 30).

Removing the SmartCard reader

- ► Open the casing (see "Opening the casing", Page 29).



- ► Remove the drive cage (see "Removing the drive cage", Page 34)
- ► Disconnect the SmartCard connector from the mainboard. Refer to the manual for the mainboard.
- ► Loosen the screws (1).
- ► Pull the SmartCard reader out of the bay (2).
- ► Install the drive cage again (see "Installing the drive cage", Page 35
- ► Close the casing (see "Closing the casing", Page 30).

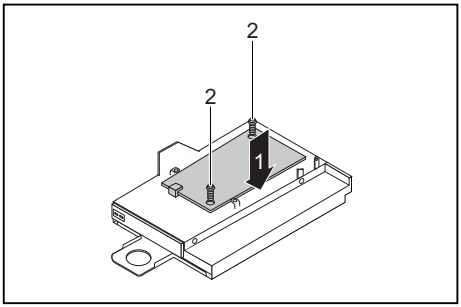
Installing and removing a WLAN module (optional)

You can also install a WLAN module for wireless LAN (Local Area Network) in the bay of the folded-open drive cage.

Installing the WLAN module

► Open the casing (see "Opening the casing", Page 29).

► Remove the drive cage (see "Removing the drive cage", Page 34).



► Slide the WLAN module carefully into the designated bay (1) and secure it with the two screws (2).

Make sure that you do not scratch the antenna on the front opening of the drive cage.

► Connect the USB cable to the WLAN module.

► Connect the USB cable of the WLAN module onto the corresponding connector on the mainboard. Refer to the manual for the mainboard.

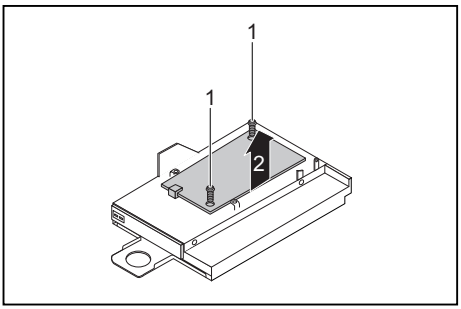
► Install the drive cage again (see "Installing the drive cage", Page 35).

► Close the casing (see "Closing the casing", Page 30).

Details on using Wireless LAN can be found in the online help system included with the Wireless LAN software.

Removing the WLAN module

- ► Open the casing (see "Opening the casing", Page 29).
- ► Remove the drive cage (see "Removing the drive cage", Page 34).
- ► Disconnect the USB cable of the WLAN module from the connector on the mainboard. Refer to the manual for the mainboard.



- ► Remove the screws (1).
- ► Pull the WLAN module out of the bay (2) together with the USB cable.

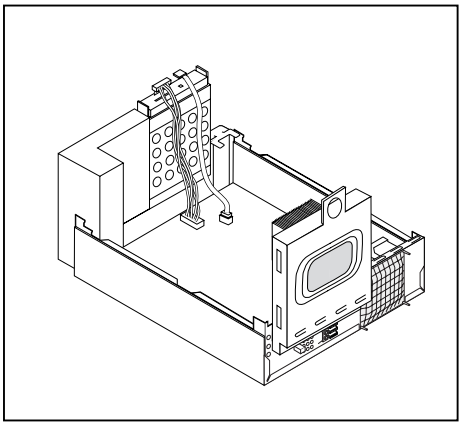
Make sure that you do not scratch the antenna on the front opening of the drive cage.

- ► Install the drive cage again (see "Installing the drive cage", Page 35).
- ► Close the casing (see "Closing the casing", Page 30).

Mainboard expansions

More information on how to upgrade the main memory or the processor of your device are provided in the manual for the mainboard.

► Open the casing (see "Opening the casing", Page 29).



► Fold up the drive and hard disk cage.

Upgrading main memory

► Upgrade the memory according to the description in the manual for the mainboard.

Processor, replacing

► Open the casing and remove the drive hard disk cage (see "Opening the casing", Page 29).
► Replace the processor as described in the manual for the mainboard.
► Re-install the drive and hard disk cage and close the casing (see "Closing the casing", Page 30).

Replacing the lithium battery

In order to permanently save the system information, a lithium battery is installed to provide the CMOS-memory with a current. A corresponding error message notifies the user when the charge is too low or the battery is empty. The lithium battery must then be replaced.

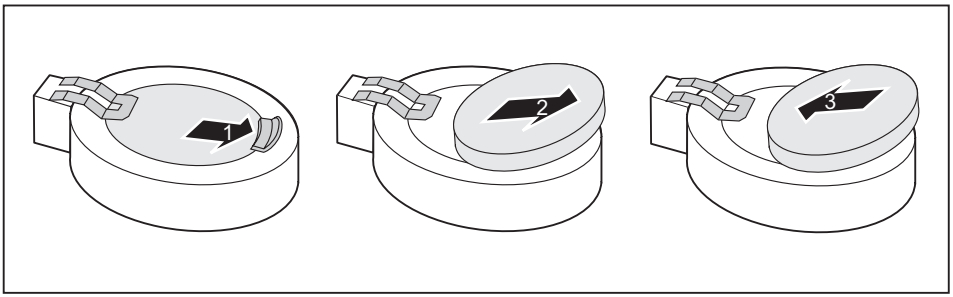
Incorrect replacement of the lithium battery may lead to a risk of explosion!

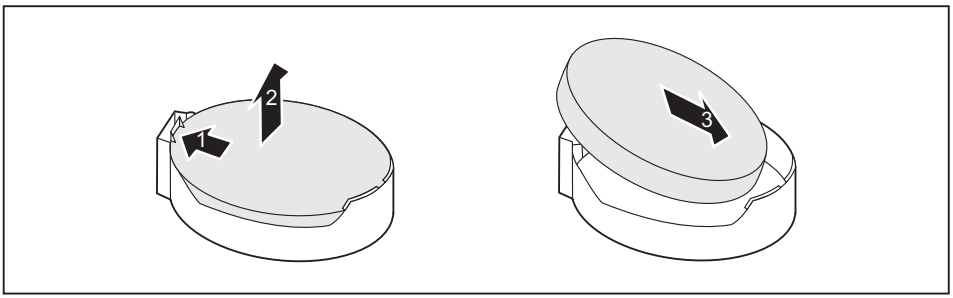
The lithium battery may be replaced only with an identical battery or with a type recommended by the manufacturer.

Do not dispose of lithium batteries with household waste. They must be disposed of in accordance with local regulations concerning special waste.

Make sure that you observe the correct polarity when replacing the lithium battery. The plus pole must be face up!

The lithium battery holder exists in different designs that function in the same way.





► Press the catch in the direction of the arrow (1).

↳ The battery jumps out of the holder slightly.

► Remove the battery (2).

► Push the new lithium battery of the identical type into the holder (3) and press it down until it engages.

Technical data

Electrical data	
Safety standards complied with:	IEC 60950, EN 60950, UL 1950, CSA 22.2 No.950 EN55022/B, EN55024, EN 61000-3-2/3
Protection class:	I
Rated voltage range	100 V – 240 V
Frequency	50 Hz – 60 Hz
Max. rated current	2.0 A - 1.0 A
Dimensions	
Width/depth/height:	264 mm/299 mm/88 mm
Weight	
In basic configuration:	approx. 5.5 kg
Environmental conditions	
Environment class 3K2	DIN IEC 721 part 3-3
Environment class 2K2	DIN IEC 721 part 3-2
Temperature	
Operation (3K2)	15 °C .... 35 °C
Transportation (2K2)	–25 °C .... 60 °C
Condensation must be avoided during operation. Clearance required to ensure adequate ventilation:	
Without air vents	min. 10 mm
With air vents	min. 200 mm

The data sheet for this device provides further technical data. The data sheet can be found on our website at "http://ts.fujitsu.com".

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